[redacted]

February 14, 2012

Dear [redacted]:

SUBJECT: Analysis Results for Water Supply at [redacted] Humboldt Township, Marquette County, Michigan

The United States Environmental Protection Agency (EPA) collected a sample from your private water supply on November 1, 2011. Attached is a tabulation of the sample analysis results. The EPA sampled your water supply to assess if past activities at the nearby Humboldt Mine and Mill site had affected groundwater and individual water supplies in the area.

The concentrations of inorganic substances and metals detected in the water supply samples were below established federal and state drinking water standards and health concern levels, and were similar to groundwater quality generally found in Central Marquette County. While it is entirely normal within the region, it is noteworthy that both iron and manganese were detected at concentrations higher than secondary drinking water standards. The secondary standard for iron is 300 micrograms per liter (ug/l) and the secondary standard for manganese is 50 ug/l. Secondary standards are not health-risk standards. They are aesthetic water quality standards.

Arsenic was detected at 23.5 ug/l or slightly more than twice the health-risk advisory concentration of 10 ug/l. Some people exposed over a long period to elevated levels of arsenic in drinking water may experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer. Arsenic is a naturally occurring groundwater contaminant. There are many types of treatment systems easily installed and operated that can remove arsenic from residential water supplies.

The sample from your water supply contained iron at 5300 ug/l and manganese at 128 ug/l. Water containing iron or manganese exceeding secondary standards may cause staining of fixtures and laundry, and may have objectionable turbidity, color, and odor.

Before you make a decision to install treatment or seek a different water source, the EPA and the Michigan Department of Environmental Quality (DEQ) believe a second sample set is needed to confirm the presence and concentration of arsenic. The EPA will contact you regarding a second access agreement and sample collection date. Analysis of the follow-up samples will also be performed for some inorganic substances not previously researched and for some organic chemicals at a lower laboratory detection limit.

[redacted]
2 names 2 addresses Ex. 6

The EPA and the DEQ appreciate your cooperation in these investigations. If you have questions about the sampling efforts, please contact Nuria Muñiz at (312-886-4439). If you have questions about the analysis results, please contact Chuck Thomas, DEQ by phone at 906-346-8534 or by email at thomasc3@michigan.gov.

Sincerely,

Nuria Muñiz
U.S. Environmental Protection Agency
Superfund Division
Region 5, Chicago IL.

Charles H. Thomas, P.G.
Michigan Dept. of Environmental Quality
Resource Management Division
Upper Peninsula District Office

Enclosure

cc: Ms. Dana DeBruyn, DEQ
Mr. Steve Harrington, DEQ
Mr. Patrick L. Jacuzzo, Marquette County Health Dept.
Mr. Don Deblasio, EPA
Mr. Mark Johnson, ATSDR

Analysis Results - 1 names Ex. 6 Residential Water Supply

Analyte	MCL (ug/L)	HMDW-010
Matrix		**Groundwater**
Cyanide (ug/L)		
Cyanide	200	2.8 J-
Metals (ug/L)		
Aluminum		200 U
Antimony	6	60 U
Arsenic	10	23.5
Barium	2000	8.7 J
Beryllium	4	5 U
Cadmium	5	5 U
Calcium		10700
Chromium	100	10 U
Cobalt		50 U
Copper	1300	25 U
Iron		5300
Lead	15	10 U
Magnesium		5100
Manganese		128
Mercury	2	0.2 U
Nickel		40 U
Potassium		5000 U
Selenium	50	35 U
Silver		10 U
Sodium		5000 U
Thallium	2	25 U
Vanadium		50 U
Zinc		96.3
PCBs (ug/L)	**2**	
Aroclor-1016		1 U
Aroclor-1221		1 U
Aroclor-1232		1 U
Aroclor-1242		1 U
Aroclor-1248		1 U
Aroclor-1254		1 U
Aroclor-1260		1 U
Aroclor-1262		1 U
Aroclor-1268		1 U
SVOCs (ug/L)		
1,1'-Biphenyl		5 U
1,2,4,5-Tetrachlorobenzene		5 U
2,2'-Oxybis(1-chloropropane)		5 U
2,3,4,6-Tetrachlorophenol		5 U
2,4,5-Trichlorophenol		5 U
2,4,6-Trichlorophenol		5 U
2,4-Dichlorophenol		5 U
2,4-Dimethylphenol		5 U
2,4-Dinitrophenol		10 U
2,4-Dinitrotoluene		5 U
2,6-Dinitrotoluene		5 U
2-Chloronaphthalene		5 U
2-Chlorophenol		5 U

SVOCs (ug/L) Continued		
2-Methylnaphthalene		5 U
2-Methylphenol		5 U
2-Nitroaniline		10 U
2-Nitrophenol		5 U
3,3'-Dichlorobenzidine		5 U
3-Nitroaniline		10 U
4,6-Dinitro-2-methylphenol		10 U
4-Bromophenyl-phenylether		5 U
4-Chloro-3-methylphenol		5 U
4-Chloroaniline		5 U
4-Chlorophenyl-phenylether		5 U
4-Methylphenol		5 U
4-Nitroaniline		10 U
4-Nitrophenol		10 U
Acenaphthene		5 U
Acenaphthylene		5 U
Acetophenone		5 U
Anthracene		5 U
Atrazine	3	5 U
Benzaldehyde		5 U
Benzo(a)anthracene		5 U
Benzo(a)pyrene	0.2	5 U
Benzo(b)fluoranthene		5 U
Benzo(g,h,i)perylene		5 U
Benzo(k)fluoranthene		5 U
Bis(2-chloroethoxy)methane		5 U
Bis(2-chloroethyl)ether		5 U
Bis(2-ethylhexyl)phthalate	6	25 U
Butylbenzylphthalate		5 U
Caprolactam		0.26 J
Carbazole		5 U
Chrysene		5 U
Dibenzo(a,h)anthracene		5 U
Dibenzofuran		5 U
Diethylphthalate		5 U
Dimethylphthalate		5 U
Di-n-butylphthalate		5 U
Di-n-octylphthalate		5 U
Fluoranthene		5 U
Fluorene		5 U
Hexachlorobenzene	1	5 U
Hexachlorobutadiene		5 U
Hexachlorocyclopentadiene	50	5 U
Hexachloroethane		5 U
Indeno(1,2,3-cd)pyrene		5 U
Isophorone		5 U
Naphthalene		5 U
Nitrobenzene		5 U
N-Nitroso-di-n-propylamine		5 U
N-Nitrosodiphenylamine		5 U
Pentachlorophenol	1	10 R
Phenanthrene		5 U
Phenol		5 U
Pyrene		5 U

VOCs (ug/L)		
1,1,1-Trichloroethane	200	5 U
1,1,2,2-Tetrachloroethane		5 U
1,1,2-Trichloro-1,2,2-trifluoroethane		5 U
1,1,2-Trichloroethane	5	5 U
1,1-Dichloroethane		5 U
1,1-Dichloroethene	7	5 U
1,2,3-Trichlorobenzene		5 U
1,2,4-Trichlorobenzene	70	5 U
1,2-Dibromo-3-chloropropane		5 U
1,2-Dibromoethane		5 U
1,2-Dichlorobenzene	600	5 U
1,2-Dichloroethane	5	5 U
1,2-Dichloropropane	5	5 U
1,3-Dichlorobenzene		5 U
1,4-Dichlorobenzene	75	5 U
1,4-Dioxane		100 R
2-Butanone		10 U
2-Hexanone		10 U
4-Methyl-2-Pentanone		10 U
Acetone		20 U
Benzene	5	5 U
Bromochloromethane		5 U
Bromodichloromethane		5 U
Bromoform		5 U
Bromomethane		5 U
Carbon disulfide		5 U
Carbon tetrachloride	5	5 U
Chlorobenzene	100	5 U
Chloroethane		5 U
Chloroform		5 U
Chloromethane		5 U
cis-1,2-Dichloroethene	70	5 U
cis-1,3-Dichloropropene		5 U
Cyclohexane		5 U
Dibromochloromethane		5 U
Dichlorodifluoromethane		5 U
Ethylbenzene	700	5 U
Isopropylbenzene		5 U
m,p-Xylene		5 U
Methyl acetate		5 U
Methyl tert-butyl ether		5 U
Methylcyclohexane		5 U
Methylene chloride		10 U
o-Xylene	10000	5 U
Styrene	100	5 U
Tetrachloroethene	5	5 U
Toluene	1000	5 U
trans-1,2-Dichloroethene	100	5 U
trans-1,3-Dichloropropene		5 U
Trichloroethene	5	5 U
Trichlorofluoromethane		5 U
Vinyl chloride	2	5 UJ

Symbol Key

MCL means maximum contaminant level
ug/l means micrograms per liter and all analysis results as reported as ug/l
SVOC means semi-volatile organic chemical
VOC means volatile organic chemical
U after a number means not detected, but the result reported is the lab detection limit
R after a number means the data may not be valid
J after a number means the substance was positvely identified and the numerical value is an approximate concentration of the substance in the sample